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ABSTRACT

During 1973-74, the World Game was studied as an experiment on a community college campus. World Game is a means of engaging humanity's best intelligence on the situations and problems arising from living on Earth, and it is a means of ensuring that the intelligence and energy of wide ranges of people are engaged in the work. The experiment was conducted as a single course, rather than a full program of study, during each of three quarters of the school year. Results of the experiement showed that although there was only one instructor and about 60 students enrolled, the wide range of activities explored offered an opportunity to assess college and community reaction to the World Game studies. As an experiement to determine what kinds of preparation students need in order to succeed in World Game activities, the program was extremely valuable. It was shown that a self-selected sample of community college students can learn the essentials of the basic concepts and then apply some of the methods of World Game to the study of their community and society. An appendix provides a Student Project Report for the fall and winter quarters of the course. (DB)

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WORLD GAME STUDY IN THE COMMUNITY COLLEGE

By

Martin J. Cohen

With a Foreword by

R. Buckminster Fuller

ERIC Clearinghouse for Junior Colleges
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FOREWORD

"The World Game is a scientific means for exploring expeditious ways of employing the World's resources so efficiently and omni-considerately as to be able to provide a higher standard of living for all of humanity--higher than has heretofore been experienced by any humans--and on a continually sustainable basis for all generations to come, while enabling all of humanity to enjoy the whole planet Earth without any individual profiting at the expense of another and without interference with one another, while also rediverting the valuable chemistries known as pollution to effective uses elsewhere, conserving the wild resources and antiquities. The World Game discards the Malthusian Doctrine which is the present working assumption of the major states. Malthus held that humanity is multiplying much more rapidly than it can supply resources to support itself, and compounds with Darwin's survival of the fittest, to assume that only the side with the greatest arms can survive. The World Game demonstrates that the Malthusian Doctrine is fallacious. If we apply to direct human support all the high technology resources now going into the world's annual 200 billion dollar war preparation, all of humanity can be brought to economic success within one quarter century. This eliminates the fundamental raison d'etre of war. The World Game employs design science to produce progressively higher performance per units of invested time, energy, and know-how per each and every component function of the world's resources. The World Game makes it possible for intelligent amateurs to discover within a few weeks of simulated design revolution illustrated on the World Map that the foregoing premises are valid."

R. B. Fuller, World Game, 1969.

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WORLD GAME STUDY IN THE COMMUNITY COLLEGE

by
Martin J. Cohen

It is not unusual for community colleges to add and subtract courses on demand from both outside agencies and inside personnel. And it is not unusual for colleges to offer experimental courses, experimental programs, and sometimes even experimental colleges within the existing structures. During 1973-74, the World Game was studied as an experiment on a community college campus. Despite a small number of students, several important concepts were demonstrated, concepts that might be used in other experimental programs on other campuses. This paper outlines some of the World Game's relevance for education, describes how it was introduced at one college, and discusses its implications for community colleges in general.

Educators frequently point to the need for models of integrated studies for students at the undergraduate level. Colleges and instructors continually experiment with team teaching of special courses with participation of several disciplines, and discuss the need to study problems in an integrated interdisciplinary manner. But it is not enough simply to desire to study the world in an integrative manner, or to allow cross-disciplinary topics to enter the field of study. One needs a powerful conceptual framework which can usefully relate many disciplines and spheres of knowledge to each other and to the world which is one's object of study. An academic quarter is a short enough time, and a meeting of a few hours per week a stringent enough framework, to demand that the study be intensely focused on a few concepts and goals that can illuminate relations among a broad variety of disciplines and yet, at the same time, not seem trivial.

The World Game idea does that. Its goals require the interplay of knowledge from many disciplines. Its concept involves

study of human needs, inventory of resources for meeting them, and design of how to use the resources most appropriately.

While the World Game's directness and idealism appeal to many young people, most of them do not yet have the skills, ability, or dedication to do the complex work of assembling world data and producing technical or social designs. Unguided, they are tantalized by the prospect of dealing with world problems in a real and constructive manner, but easily become frustrated by the enormity of the problems they encounter and their own lack of expertise. A formalized, comprehensible introduction is needed.

World Game involves two ideas, two purposes: first, it is a means of engaging humanity's best intelligence on the situations and problems that confront us in continued dwelling on Earth; second, it is a means of ensuring that the intelligence and energy of wide ranges of people, and not just a narrow elite, are engaged in the work. The model that R. Buckminster Fuller has proposed as a curriculum model for universities and design schools (to answer the first purpose) is also appropriate to the conditions at community colleges (where it can answer the second purpose). The value of the community college to World Game is in providing an educational setting that includes a wide range of occupational, ethnic, and income groups and close association with real economic and social communities. The value of World Game for the community college is a means of attaining closer relations with its community through study of its problems and trends affecting it, designing for the needs of its people, and engaging in direct community education and dialogue while maintaining vocational and academic standards in the work of its students.

World Game related activities have taken the form of workshops and seminars held at many colleges and universities in the United States and Canada, where groups study its ideas presented chiefly through the writings of Fuller and his associates.

While Fuller and his co-workers are currently playing the World Game at a "professional" level, the intent of our experimental program at a community college was to explore the feasibility of adapting the concept as an "amateur" activity suitable for college and university students. The model for World Game study at the selected community college differed from that employed by these other groups. It was not simply a study of the games' philosophy or an intensive design workshop focused on one aspect of the gaming. Rather, it took the complete program of the World Game and brought it into the bounds of the community college district. This contraction allowed students to engage in a full spectrum of activity while committing themselves for only a relatively short space of time: a minimum of six months to one year instead of the lifetime of dedication required for the work of Fuller and similar scientists.

The institution chosen for this experiment is a typical community college offering instruction in a great variety of disciplines, skills, and subjects. It contains academic, vocational, developmental, and community services programs as well as the academic program, a considerable portion of which parallels the courses of the state university and colleges. Thus it served well as a model institution for experimenting with integrative alternatives to instruction.

Background

The initial plan for adapting World Game activities to the community college was set forth in a paper College of the Whole Earth (Cohen, 1971). The model presented there was a comprehensive one, calling for establishing World Game activity as a full-time program of study that would occupy students for six months to a year. It proposed an institution based in the community college "whose prime task is the collection, tabulation, and dissemination of information for and about its own community or district." It suggested that the information "be gathered,

sorted, and disseminated using the energy and intelligence of the young people of the community itself." Rather than a random search for any and all information, or an attempt to service the direct requests of community agencies, the proposal suggested that students seek general trends in community economy and use these to anticipate events and show relations between various areas of community life. The college was also to examine "alternate ways of solving community problems and to provide information about the consequences of following any of the various paths." In addition, it was to investigate possible ways of "developing the community resources and increasing the wealth and variety of life in the community" and finally to "stimulate an influx of similar information...from other parts of the world," adapting this information to local needs.

As originally designed, the College of the Whole Earth had an advisory board of community leaders: university faculty, planners, media professionals, and industry managers. It also had a staff composed of a librarian, technical director, research coordinator, and community coordinator. Some students with experience in the college were to be hired as aides to the staff.

An important distinction between the program of College of the Whole Earth and most community college programs was the attempt to foster an "attitude of work" rather than one of schooling as a basic manner of organization for students' activities. College spaces were to be arranged like offices and studios, rather than as classrooms and seminar studies, and students were to work together toward production of public displays of their activities.

While no specific timetable was proposed for implementation, it seemed clear at the time it was conceived that College of the Whole Earth idea would not receive a full-scale trial for some years. In order to better judge its feasibility, a prototype to

test parts of the plan was necessary. Thus, the experimental program was conceived as a means of trying out the College of the Whole Earth idea in a realistic setting, gaining some experience with how World Game concepts would be perceived by community college students, and learning how a community college would respond to the World Game and College of the Whole Earth ideas so that a future prototype could be more deliberately and intelligently designed and implemented.

The Model In Process

Implementing a design or model in an established institution has various ramifications. Most community colleges offer several points of entry to new or experimental programs. Courses or short programs may be presented through the community services division of the college or district with a minimum of delay or procedural difficulties. In general, this division offers courses on a one-time basis on almost any topic for which demand can be demonstrated and an instructor found. Day and evening courses offered through the instruction division of the college are subject to more scrutiny since so many of them are tied via affiliation with professional or university parallel programs to accrediting and control agencies outside the college.

Internal campus procedures can generally approve new courses on a trial basis within a year and list them as a regular part of the college's offerings in two or three years, provided they meet appropriate standards. At present, some colleges are experiencing decreasing enrollments and many administrators are uncertain about support for programs already in existence. Therefore, unless a new program can gain the support of campus policy makers--deans, department chairmen, senior faculty--and enlist the enthusiasm of instructors already part of the college to teach in it, it is unlikely to survive the competition for operating funds and space.

As originally conceived, much of the program of World Game

seems remote from the pattern of activities current in community colleges. While some administrators and instructors are sympathetic to the general goals of World Game, its mode of organization is so unfamiliar to them that they find it difficult to envision the full breadth of its activities taking place on their campuses without disrupting the other missions of the college. The curriculum plans outlined by Fuller and McHale (1963-1967) for schools of architecture, seem ill-adapted to the community college. Their descriptions of tightly organized groups of students working for months at a time on forward-thinking projects seem foreign to the idea of a college in which students drop in and out with little commitment to long-term goals and where there is little funding support or faculty incentive for research. If a World Game program is to succeed in a community college setting, it will have to find means of defining the work so that students can rapidly assimilate the concepts and information needed to accomplish a satisfying portion of the larger task within the time that they are prepared to devote to it. One way of making the tasks more manageable would be to limit the sphere of student information gathering to the boundaries of the college district rather than the broader community.

The experiment described in this paper, was conducted as a single course, rather than a full program of study. Students were informed that a daytime transferable course would be conducted as part of a program on the World Game, and that they could elect to take this and related courses (Environmental Studies, Data Processing, Mathematics). Several means were used to introduce the idea to students: counselors were advised of the course during registration, the film "The World of Buckminster Fuller" was shown on campus, announcements were printed and posted, and college faculty were told of the new offering in informal conversations.

The Course Setting

Setting for the experiment was at first problematical. While it seemed evident that World Game at a community college would not require banks of conventional classrooms, even if it were to engage relatively large numbers of students, it was not clear what kinds of spaces would be most useful, or in what proportions. We chose a large room set up with drafting tables and stools. In addition to a blackboard and movie screen, we had the use of a bulletin board running the full length of one of the walls. This space was useful for looking at films and slides, for listening to lectures and for individual and group work on projects involving mapping information for displays. For group discussions of strategy for the quarter and assessment of progress, we found a seminar table in the students' center more useful. And in order to look at video tapes, it was necessary to move the class to studios in another part of the campus. A protected space out-of-doors was used for storing materials and experimenting with structures.

Three Quarters

The experiment consisted of three courses, one offered each of three quarters of the 1973-74 school year. Students could take any one or all of the classes. No attempt was made to establish it as a regular offering of the college. It was intended to be and remained an experiment to explore means of introducing World Game to the needs, interests and abilities of community college students. Initially, we were interested in discovering what concepts, legitimately part of World Game, were comprehensible by the students, and what manner and sequence of presentation would enable them to grasp those concepts most readily. Thus we were not primarily asking whether the students would accept all of the ideas incorporated in World Game. Rather, we were concerned with the range of students' comprehension of the scope of World Game philosophy, and their ability to perform tasks analogous to those involved in full range of the game's

activity. In addition, we wanted to see how a typical campus would react to the presence of a group engaged in World Game studies, and how the staff of the college might respond to various demands on campus resources put by such a group.

We were able to show that World Game ideas and activities can engage the interest of students in a community college, that they do not disrupt the life of the college, and that, occasionally, they can have a good effect on the ambience of the campus. Some World Game activities fit well into college routine and staff expectations; others tested the boundaries of the normal way of doing business.

In this test, no attempt was made to find out what percentage of all students in the college would be interested in taking part in World Game studies other than to ascertain that the numbers would be sufficient to sustain a continuing program under conventional funding arrangements. Very nearly all students were able to understand the purposes and philosophy of the class and to participate creatively in work on projects. A few students who experienced difficulty or simply decided that they were not interested in participating dropped the class.

Since the first weeks of each quarter were devoted to orientation of students to the philosophy of the class, we found it to be important that students be present and participate in the class at that time. In Fall and Winter, when students joined the class during the fourth week, they found it difficult to follow the proceedings. Ultimately these students were confused about what was expected and did not perform to the level of competence or with the satisfaction experienced by the others.

After a quarter in the program, students were able to formulate their own projects and to bring them to successful conclusions. Furthermore, they were frequently able to take the initiative in organizing the help of students new to the program and in securing campus resources for production and display of their work.

During the program, three methods of organization were attempted. Each quarter the program took on a significantly different form, and this form was consciously planned as a variant of a possible organizational pattern. The forms--lecture/discussion, autonomous group projects and guided group projects--were conceived in advance. However, the details of each pattern were developed with the help of students at the college, and adapted to their expressed interests. Thus the third quarter consisted of a series of lectures, but students during the second quarter were consulted about what lecture topics they would find most useful. During the second quarter students worked in groups at projects of their own design and choice, with minimal aid or interference from the instructor. In the first quarter it was the instructor who conceived and outlined several projects and organized student groups to work on them.

Fall Quarter

The course met five times for a total of eight or more class hours per week. Since the students were also working outside of class reading and doing library research, writing papers and preparing displays of their projects, the time and work expended for the class were greater than usual for a three unit course.

During the first two weeks, students watched films and videotapes which discussed and explicated the basic concepts and methodologies of the course. The films and videotapes dealt with Fuller's work and philosophy, including his geometric researches. One of them introduced the World Game idea. Other films dealt with modes of perceiving the world and with basic phenomena in the world. In addition, students wrote on and discussed in small groups a series of questions defining a basic vocabulary of terms for comprehensive thinking, and for considering the world and human experience as a whole.

During the next two weeks, the students sought out

statistical information about important world trends (e.g. population, life-expectancy, food production, energy production and use, and prime metal production) and made graphical displays of this information in the form of maps and charts showing the disposition of the world's economy and peoples. They prepared these charts in form suitable for reproduction, finishing them with a high degree of accuracy and care. In preparing these charts and maps, they confronted problems involving data acquisition, comparison of sources, reduction of data to form suitable for mapping, making the necessary calculations, and plotting the information in unambiguous and readily apprehensible form.

Finally, the students embarked on group projects such as investigating world energy systems, the economy of the San Francisco Bay Area, and plans for the future of the San Mateo Coastal Zone. Students used corporate libraries and the Government Document Center of a nearby university to aid their research. They wrote to officers of the United Nations and the United States Department of Commerce and Interior and discussed their work with staffs of county and regional planning commissions and local utility companies. One student did a survey of organizations engaged in international cooperation for study of the Earth, others prepared an exhibit of their work and displayed it in the Campus Center (excerpts from the report which accompanied the exhibit appear in the Appendix).

Winter Quarter

Winter quarter continued much where the previous term had left off. Students returning for a second quarter of World Game study either continued projects they had begun or started new projects. New students discussed World Game philosophy and joined ongoing projects or attempted to organize ones suited to their areas of interest. However, the class differed in several respects.

Rather than meeting five days a week for up to two hours a day, for example, the class convened only three days a week for

about an hour. About half of the class time was devoted to discussion of basic World Game concepts: patterns of world resource distribution and use, processes of social organization involved in industrialization, fundamentals of system theory, historical perspective of humanity's current choices and basic concepts of Fuller's design strategies.

Because students developed and organized their own projects, there was more diversity in the kinds of work they did during Winter Quarter than during the Fall. Some students did research on building structures; others experimented with means of introducing preschool children to concepts of physics and solid geometry; another group conducted a weekly radio program in which they discussed approaches to the future. By the end of the quarter they had prepared displays of their work to exhibit in the college library and edited and published a report summarizing their experiences.

Spring Quarter

In reflecting on their work during Winter Quarter, students who wanted to continue World Game study felt that they needed to know much more about the context and details of its philosophy and methodology. They suggested areas in which they would like more coordinated discussion and asked that the instructor lecture on some of the topics they had encountered in their readings. Accordingly, Spring Quarter was organized around a calendar of topics which explored the range of World Game philosophy and methods.

The Spring Quarter course was divided into four units: World Game philosophy, synergetics and geometry, world resources and industrialization, and design science. Objectives in Unit One called for reading and discussion of World Game philosophy texts, including several books by Buckminster Fuller. Unit Two entitled "Structure, Nature, and Design," was adapted from the short course on synergetic geometry described by Cohen and

Petrillo (1972), and included study of the structural and geometric basis of geodesic domes. At the conclusion of this unit students fabricated and erected a 22 foot diameter geodesic dome.

Unit Three dealt with trends in world resources and human needs. After study of patterns in world industry, students examined industrial artifacts and products available locally and traced their relations with the larger world trends. Course objectives called for identifying the functional parts of complex machines (students chose such articles as a bicycle, loom, desk lamp, typewriter), finding out where the parts were made and from what material elements. Then, using information they had previously gathered about patterns of world industry, students were to identify the part of the earth where the materials making up the machine originated and the processes of transformation which brought them together in useful form.

In Unit Four, students explored the application of Fuller's design science strategy to dwellings in the local area. Working as a group they searched out information about the use of water in the community and calculated means of using it more efficiently through better design of household appliances. Objectives in this unit called for cooperation among students in dividing tasks, searching information, analyzing needs and synthesizing design requirements.

Results

Many of the students found that World Game challenged basic assumptions about themselves and the world. During fall and winter, the format of the course as well as the concepts they were dealing with were demanding and unfamiliar. As the quarter neared its end, students became anxious that their expectations about what a college course should be were not fulfilled. Rather than being examined on material that had been presented to them via lectures and required readings, they were asked to display the results of their own information gathering and problem solving.

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While they were able to gather and analyze the information effectively, and to present it in a useful manner, presuppositions that such work was not appropriate in college and that it was beyond their abilities made them anxious.

During their first quarter, students needed continued guidance and encouragement--not so much in mastering techniques but to have faith in their own ability to do significant work. Orientation to World Game requires, first, understanding several ideas about work including the context and purposes of work, how it can be educational to do work (rather than just follow courses), why it is important that the work be done, and what its intellectual foundations and Fuller's world view are. Second, the orientation requires seeing models of World Game results, especially in the form of prior work done by other groups of students. This second requirement satisfies the need of students to realize that they can do something useful with the tools available to them. The informative content of the work accomplished also introduces students to the facts, trends and historical contexts of the work to be done.

By the end of the quarter when projects have been completed and students were able to reflect on their experience, many of them felt better about the program and enrolled for a second or third quarter. Eleven of the twenty-one students who enrolled in the fall continued during winter; six of the twenty-seven who enrolled in winter continued during spring.

As an experiment to determine what kinds of preparation students need in order to succeed in World Game activities, the program was extremely valuable. We were able to ascertain that a self-selected sample of community college students can learn the essentials of the basic concepts and then apply some of the methods of World Game to study of their community and society. While the experiment was small in terms of numbers of staff and students involved (one instructor and about sixty students on a campus enrolling approximately nine thousand day and evening

students), the wide range of activities explored during the year offered an opportunity to assess college and community reaction to World Game studies.

Another result of this program was that students in the course came into contact with college staff as they sought data and made arrangements to display and publish their work. In particular, they reported that the college reference librarian was helpful in suggesting sources of information, and that staff in the dean of instruction's office were helpful in suggesting exhibit and work spaces.

The experiment generally had a low profile; however, several articles concerning it appeared in the student newspaper and in local newspapers during the year. A few students discussed the class and related topics in a weekly program they held on a local FM radio station. These generated some favorable notice and inquiries from colleges and other organizations in the area. A few dozen students and staff examined the exhibit of student work displayed at the end of Fall and Winter Quarters, and some notice was given to World Game activities on the campus and in the community as a result of the erection of geodesic domes in fall and spring. Otherwise, the experiment had little effect on the campus as a whole.

Rationale For World Game

We are coming into a time when all humanity can comprehend the finiteness of the Earth. Now we can begin to see it, not as a theory, not as a philosophical or religious belief, not as the result of calculations of data and formulas, but through the extensions of our own senses. We have, only in this century, accurate global maps with no blank unsurveyed areas on them. The satellites which allow us to see the Earth whole carry live crews as representatives of humanity, and instruments including television cameras, transmitting information and pictures that can be apprehended by all humanity.

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Then instruments are able to monitor the resources of the planet--grain, cattle, timber, atmosphere quality and surface water quality--to almost any desired degree of resolution. Using these data it is possible to reconstruct the processes by which activity in one part of the planet affects the whole. It is also possible to follow the progress of these activities.

As we see that the Earth is singular and finite, and as we are able to discover its true dimensions--its physical extent, its capacities for sustaining life, the limits of its ability to absorb abuse and of life's potential for correction and regeneration--we can begin to think in terms of proper dwelling on the planet. We must not think in terms of abstract Utopia but of real preferred worlds, of desirable states for Earth and humanity.

It is a kind of game to make lists of the needs, desires, goals and attributes held in common by everyone, and to share the lists each of us make. We can play another game of thinking about ways of making everyone a success in terms of the goals, taking into account the unique attributes we have in common. These two games, and especially the second one, constitute the World Game. It is based on the principle of preferred dwelling patterns for humanity on Earth, and on the cooperation of people in developing strategies that allow everyone to achieve those preferred patterns.

World Game, in spite of many years of work by Fuller and a number of enthusiastic followers, is not yet well understood nor clearly defined, even in the minds of many people who have been associated with the idea for some time. At this writing (June, 1974), Fuller and his co-workers are preparing the first full scale run of World Game activity. This work should clarify many misconceptions about basic methods and goals.

Since the game involves envisioning particular goals and working back from their achievement through steps which must be

taken first, finally coming back to our own time and the choices we can make in our present situations, it is a game of teleologic strategy. Each time we begin the game in our "present situation," we have changed, and our goals too may change over time as we envision new possibilities for humanity. But we hold fast to the two prime rules governing the game structure: our goals are envisioned in terms of all humanity and are congruent with the attributes held in common by everyone, and we must always work backwards to the best information available about the present situation of humanity. (A corollary of the first rule is that players are disqualified for employing force or violence by one part of humanity against another.) It is a simple game in structure, yet a little reflection reveals that its play can absorb the energy of a lifetime, with continual reward in the play itself.

In spite of the breadth of its concerns and the many levels on which it can be played, World Game does not encompass the whole of human life or every attempt at study of the world or planning for the future. Most "futures" plans center around special purposes and limited constituencies. World Game is interested in the attributes of whole systems, and how their behaviors affect the parts which comprise them. It becomes possible to understand the relations of the parts by first seeing the whole. On one dimension, understanding the needs and goals all humanity have in common can lead toward appreciation of the individuality of each human being, and of the varied histories of the human peoples. On another dimension, understanding of trends in material and energy use over the whole Earth can put in perspective the needs of people and industry in specific localities.

According to Fuller, "the World Game is a precisely defined design science process for arriving at economic, technological and social insights pertinent to humanity's future evolvement aboard our planet Earth" (Fuller, 1971). Its guiding

principle is to develop designs for the use of Earth's resources such that all humanity will be able to share in the creation of a healthy, spontaneous democracy. The concept involves study of human needs, inventory of world resources for meeting them and design toward using the resources most efficiently. It assumes that with proper information and real alternatives, people will choose life, health and peace over death, disease and war. The task is to make choices real by creating designs that enable people to shelter, clothe, feed and inform themselves. World Game further assumes that all people, and not just a minority, have the right to live out their lives without facing starvation, disease or premature death due to lack of adequate shelter or other necessities of life. World Game designs are evaluated with those criteria in mind.

When College of the Whole Earth (Cohen, 1971) was written, the "crisis of the environment" was beginning to occupy the attention of masses of Americans for the first time. Since then the visible aspects of the continuing crisis have assumed varying forms--recently as an "energy crisis", soon to be expected as a crisis of material resources. This series of crises offers people an opportunity to learn how the economy is organized in detail. Their attention is being brought to relations between environmental quality, fuel alternatives, politics and material processes. This opportunity should not be missed. That is why the public's education about the nature of the crisis should be informed by the widest possible perspective on the situation, its history, evolution, philosophical bases and the real choices open to us.

A community college program examining these perspectives by adapting itself to the diverse interests and abilities of a cross section of people in the community can offer a means for people to see relations among these perspectives and make it possible for them to involve themselves in study of the crisis on a level appropriate to their time and energy. Such a program could offer

a transition between one level of involvement and another.

Consider the following list as a hierarchy of levels of involvement with the crisis:

1. Awareness brought about by obvious inconveniences and mandated changes in living patterns--e.g. having to search for gasoline, increased prices of certain commodities, observation of polluted beaches and streams, irritation due to atmosphere pollution, etc.

2. Concern manifested through deliberately attending to newspaper articles about the crisis manifestations, watching television reports and reading magazine articles dealing with an aspect of the crisis, or going to meetings and lectures in which the crisis is discussed.

3. Commitment to act with regard to the crisis by studying it in detail and gaining new perspectives about it through attending workshops and classes, such as the World Game study workshops, classes in environmental studies, or professional workshops which interpret the crisis in terms of its impact on one's field of work or other activity and offer means of dealing with it.

4. Dedication to change important patterns in one's life in accordance with new perceived requirements for coming to terms with the crisis--by entering an extended program of study to understand the dynamics of the crisis and how one may act in terms of it, modifying occupational goals, changing important aspect of one's means of living or livelihood in terms of perceived demands of the crisis.

5. Metanoia, conversion of the frame of one's life goals as a consequence of perceived needs in the world which address one directly and require fundamental changes

> in the strategy by which one's life is lived; this is a rare phenomenon, associated in the past with religious intensity. It involves direct perception (as well as detailed understanding) of the great scope and implications of the crisis and clarity about one's personal need to address the crisis with one's whole being.

Community college programs can act best at levels two and three of this hierarchy to inform people who are already concerned, to offer people a place to explore their own commitment, and to guide their incipient sense of dedication.

The roots of young people's attraction to Fuller and the World Game come from their sense of order and unity in the world, faith in the role of humanity, concern for all people, and conviction that they are responsible for the well-being of the world. Fuller points up the philosophical and historic significance of World Game activity by relating it to a cosmology which requires the intelligence of humanity as a counterpoise to the energy of the stars in the universal balance. His personal statement of the role of humanity in the universe has roots in American transcendentalism. The studies of natural order which complement his vision of humanity's role share a transcendental faith in the unity of the world.

The integrative potential of World Game concepts can be useful in giving direction to the general education program of the first two years of college. The focus of World Game can be especially appropriate for the community college. However, certain adaptations are necessary in order to allow unqualified students to begin work on problems that they can handle, and that they can also see as meaningfully related to the larger problems of the whole Earth. If World Game has a distinct educational philosophy, it is that learning is best accomplished in situations where people are confronted with a piece of work requiring thought, research, reflection and energetic application of

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mind and spirit, and where the necessary tools and guidance are at hand.

In order for such a situation to exist, the work must be authentic, and it must be possible to accomplish it within the space and time available. The work that is at hand for all of us during the next decades is evident. We must find ways of living on the planet together, without destroying it and without losing our freedom, decency, and humanity in the process.

In the largest sense, World Game's task is to present that piece of work as a problem and to induce young people to commit their intelligence and energy to solving it. Fuller's work at his Philadelphia headquarters and with his students around the world is devoted to gaining the commitment of young professionals in architecture, in cybernetics, in physics, in biology and in business to that problem. The goal of World Game work in the community college is to present the problem in such a way that "unqualified" people will see their stake in it, and take up the challenge through a clearer sense of their own need to gain relevant expertise.

Meanwhile, and as part of the process of inducing students to feel that they can act responsibly both with respect to their own lives and with respect to the future of the United States and the world in general, this adaptation of the World Game idea aims at finding tasks comprehensible to people who see themselves as unqualified, yet which they can also recognize as meaningfully related to the betterment of the whole world.

Part of the strategy in adapting the World Game idea has been to induce students, after a suitable period of exposure to the "whole Earth" philosophy, to focus on a task which concerns their own community--the commute district of the college. The presumption is that within that district is the information they need to examine a real aspect of the world problem, and the resources to work toward its solution. By focusing on the district in which they live, students are confronted with the

need to think carefully and act prudently.

Because the community college has responsibilities toward a district of similar dimensions, and because its students can represent a reasonable sample of the whole community, it is an appropriate environment for this study and work. Conversely, since the college is an expression of the community's belief in the need for an enlightened citizenry, it is appropriate that the community college should devote part of its educational program to the need of that citizenry for information about itself and its relation to larger trends in the world. World Game offers the community college a coherent means of so doing.

APPENDIX

Fall Quarter Student Project Report

"My project dealt with world population and life span. I was interested in seeing how long, on the average, people lived in various areas in relation to the number living in that same area. I wanted this in an easy to comprehend form, such as a map or photograph...Accuracy in this project was very important to me. I had never researched a project like this, so a great deal of trial and error was my experience. To begin with, I found that I needed to do this by myself because I didn't feel comfortable knowing that others had done part of the pin plotting. I experimented with various ways of presenting the final maps. Since these were to be photographed, I needed to consider the scale, which color pins to use, and whether any two colors might blend into one and not stand out in the photograph, and a hundred and one other little details (camera settings, lighting, moving the map, etc.).

I replotted the maps over and over again until I was certain the best color combination I could think of at the time was used. I tried different ways of organizing my data so it was easy to read and efficient when plotting the pins. The first map I put up took weeks. The reasons being 1) there were four of us working at once using the same photocopied raw data; 2) we worked only during class time using an hour here and an hour there; 3) we hadn't thought about color combinations or the photographing details; 4) our population scale was not the best; 5) we were very unfamiliar with the map; 6) we kept running out of certain colors of pins; 7) we weren't organized as a group and our goals weren't clear, and other little things. The final time I put up the last map, it took only two hours. This time, there was only me working on it; I worked from start to finish without breaking; color combinations and population per pin were completely worked out; I had plenty of pins and was very familiar with the map, as

well as having completely organized what I was going to do on paper and I had an atlas in front of me for reference. I learned a great deal from start to finish about researching, organizing my work, and where the various countries and areas of the world were. To top it off I enjoyed it."

Winter Quarter Student Project Report

"The intent of this project is the introduction of basic concepts of solid geometry, physics, and a comprehensive world view via tactile learning materials and a manual on their use.

It is absolutely necessary that we have a basic understanding of the points we intend to elucidate. This means that we must not "name away" that which we do not understand. Why should the functions of nature be couched in esoteric scientific nomenclature, hidden away in unintelligible books?

The initial phase of this project, complete at this time, has been the composition of a book depicting how children of preschool age learn these principles with common, existing materials.

The motivation for introducing these concepts into the preschool classroom is derived from several basic premises: One, that the concepts which Fuller has promulgated are essential to the survival of our spaceship earth. Two, that these concepts are not available in our standard educational process. Three, that learning theory proposes that an individual's adaptability to assimilating abstract concepts (i.e. solid geometry) is dependent upon separate non-intellectual experiences in manipulation and exploration of the environment. Four, that the current educational process to a large degree frustrates and denies the naturally comprehensive perceptions of young children. Five, that an extremely high percentage of an individual's IQ potential is achieved in the first five years of life.

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Fuller has suggested that we place our educational dollars at the wrong end of the spectrum. Were we to put more energy and dollars into the very young, we would produce more intelligent and comprehending individuals. The development of IQ is at least partially dependent upon the quality and quantity of stimulation and experience a child is provided with.

As work progresses, we are using the College Child Care Center as a laboratory in which to test our designs and gain some feedback."

BIBLIOGRAPHY

Cohen, M. J. The College of the Whole Earth. Topical Paper No. 27. Los Angeles, California: ERIC Clearinghouse for Junior Colleges, 1971. ED 055 588.

Cohen, M. J. and Petrillo, J. "Environment Study with Buckminster Fuller's Geometry." Science Education, 59 (4), 1972. 519-527.

Fuller, R. B. The World Game. World Design Science Decade Document 1. Philadelphia, Pennsylvania: University City Science Center, 1971.

Fuller, R. B. and McHale, J. World Design Science Decade Documents 1-6. World Resources Inventory. Philadelphia, Pennsylvania: University City Science Center, 1963-1967.

"The World of Buckminster Fuller" available from Master and Masterworks Productions, Box 1141, Pacific Palisades, California 90272.

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